

General Power Electronics Real-time Digital Simulator and its Applications from A Cyber-Physical Systems Perspective

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Abstract

Power electronics have proven a significant technology for the modern and future power grid. This talk will introduce a general power electronics real-time digital simulator. The challenges mainly come from the fast switching characteristic and the large amount of power converters. Achieving real-time simulations with such small time-steps like 500ns requires not only the great computing power of hardware but also the high efficiency of models and simulation algorithms. This speech will discuss recent efforts to develop new models and the associated real-time simulation technology. The current and future applications of this simulator are discussed from a cyber-physical systems (CPS) perspective.